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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,483

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Shahab Jahromi

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NIXON & VANDERHYE, PC

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ARLINGTON, VA 22203

EXAMINER

NEGRELLI, KARA B

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

04/28/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,483

Applicant(s)

JAHROMI, SHAHAB

Examiner

KARA NEGRELLI

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
- Paper No(s)/Mail Date 12/08/2008, 06/12/2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

**PROCESS FOR PRODUCING A NANO-POROUS POLYMERIC MATERIAL, A
POLYMER COMPOSITION COMPRISING NANOPARTICLES OF A CHEMICAL
BLOWING AGENT, NANOPARTICLES OF A CHEMICAL BLOWING AGENT, AND A
NANO-POROUS MATERIAL**

DETAILED ACTION

Claim Objections

1. Claims 9 and 11 are objected to because of the following informalities: Claim 9 appears to be missing the word "Nanoparticles" at the beginning of the claim, and claim 11 appears to be missing the word "or" within the claim. For examination purposes, the examiner assumes the missing word from claim 9 is "nanoparticles" and the missing word from claim 11 is "or." Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 11 provides for the use of the process of claim 1, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claim 11 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2003/0220039) and further in view of Hunter et al. (US 4,777,188).
9. Chen et al. teach a porous, polymeric biodegradable foam material comprising a blowing agent which is activated to produce gas bubbles (decomposed into its gaseous reaction products) by heat (paragraphs [0083], [0091], [0094], [0101], [0110], and [0167]). Chen et al. teach coating fibers with a fiber coating material, combining said fibers with a binder (said binder of which is a polymeric material, paragraph [0098]) to

form a mixture, producing a foam within said mixture, and binding said fibers together in a continuous, porous network (paragraphs [0022] - [0026]). The polymer can include polyethylene oxide, polyvinyl acetate, and polyvinyl ether polymers (paragraph [0094]).

10. Chen et al. do not teach expressly that the material is nanoporous. However, the averaged cell size of the polymeric foam material is 50 microns or less (paragraph [0151]). Because the polymeric foam has an average cell size of 50 microns or less, one of ordinary skill in the art would find it obvious that the cell size could be within the nanoporous range.

11. Chen et al. further teach that the blowing agent can be azodicarbonamide (paragraph [0146], pertaining to claim 5). Azodicarbonamide has a decomposition temperature of 210°C, which is below 300°C (US 4,777,188, column 5, line 25, pertaining to instant claim 4).

12. Chen et al. also disclose that the fibrous structure can be imparted with a non uniform basis weight or thickness distribution during formation, as by depositing the fibrous structure onto a molded or textured substrate surface (paragraph [0066]). One of ordinary skill would recognize that depositing the structure onto a substrate surface implies coating the substrate (pertaining to instant claim 3).

13. Chen et al. also teach crosslinking the fibrous structure by exposure to ultraviolet light (paragraph [0170], pertaining to instant claim 6).

14. Chen et al. fail to teach that the blowing agent is in the form of nanoparticles.

15. However, Hunter et al. teach that in the manufacture of foamed elastomeric compositions, a foamable, curable elastomeric polymer is mixed with a curative and a

blowing agent which, upon exposure to elevated temperature conditions, decomposes to form gaseous reaction products for expansion of the material (column 1, lines 20-26).

16. Hunter et al. further teach forming a blend comprising: a foamable, curable elastomer, azodicarbonamide as a chemical blowing agent, and a curative (column 3, lines 25-33), said azodicarbonamide which is in the particulate form, and said azodicarbonamide which has a mean particle diameter of from 0.5 to 50 microns (500 nm to 50,000 nm) (column 4, lines 30-41). The instant application teaches that the nanoparticles of a chemical blowing agent have an average diameter of from 2 to 1,000 nm (paragraph [0029]).

17. Hunter et al. teach blending together all the ingredients excluding the blowing agent until a homogenous composition is formed, and then adding the blowing agent at a temperature well under the decomposition or gasification temperature of the blowing agent (column 6, lines 3-10). The blend is transformed into a desirable configuration (the blend is processed), and finally, the blend is heated to a temperature sufficient to produce a foamed product (in other words, to a temperature above the decomposition temperature of the blowing agent) (column 6, lines 11-16).

18. Chen et al. teach that blowing agents can be adapted to be used in the disclosed invention, including organic nitrogen compounds such as azodicarbonamide (paragraph [0146]). If the azodicarbonamide was adapted to have the small particle size of azodicarbonamide taught by Hunter et al., the blowing agent could be more uniformly dispersed throughout the composition. It would have been obvious for one of ordinary skill in the art at the time the invention was made to produce use the azodicarbonamide

blowing agent with a particle size as disclosed by Hunter et al. in the composition of Chen et al. in order to ensure that the blowing agent would be uniformly distributed throughout the composition, creating a more uniform foamed structure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA NEGRELLI whose telephone number is (571)270-7338. The examiner can normally be reached on Monday through Friday 8:00 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/582,483
Art Unit: 1796

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Examiner, Art Unit 1796

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Supervisory Patent Examiner, Art Unit 1796